

Amendment and Response Under 37 C.F.R. 1.116

Applicant: Edward Fuergut et al.

Serial No.: 10/561,819

Filed: December 22, 2005

Docket No.: I431.139.101/FIN474PCT/US

Title: SENSOR COMPONENT AND PANEL USED FOR THE PRODUCTION THEREOF

IN THE CLAIMS

The claims as currently pending are as follows:

1-13. (Cancelled)

14. (Previously Presented) A sensor component comprising:

a sensor chip with a sensor region, conductor tracks and contact areas on an active top side of the sensor chip,;

a plastic plate, in which the sensor chip is embedded by its rear side and its edge sides, the active top side of the sensor chip and top sides of the contact areas, together with a top side of the plastic plate having a planar overall top side; and

a rewiring structure with a rewiring layer having flat rewiring lines from the contact areas to external contact areas of the sensor components, the rewiring structure being arranged on the planar overall top side.

15. (Previously Presented) The sensor component of claim 14, comprising:

wherein the overall top side comprises electrode areas of passive components embedded in the plastic plate, rewiring lines extending from the electrode areas to contact areas and/or to external contact areas.

16. (Previously Presented) The sensor component of claim 15, comprising:

wherein the overall top side comprises contact areas of a semiconductor chip with integrated circuit, rewiring lines extending from the contact areas of the semiconductor chip to contact areas of the sensor chip and/or to electrode areas and/or to external contact areas.

17. (Previously Presented) The sensor component of claim 14, comprising wherein the

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sensor chip and a semiconductor chip with integrated circuit are embedded in a manner stacked one above the other in the plastic plate, the sensor region forming a part of the overall top side.

18. (Previously Presented) The sensor component of claim 14, comprising wherein the sensor region is radiation-sensitive and comprises a lens.

19. (Previously Presented) The sensor component of claim 14, comprising wherein the plastic plate comprises through contacts, the through contacts being connected to external contact areas on a plastic plate rear side and being electrically connected to the rewiring lines on the overall top side.

20. (Withdrawn) An optoelectronic device comprising:

a camera housing;

a sensor component at least partially located in the camera housing, the sensor component comprising:

a sensor chip with a sensor region, electrodes of the sensor region, conductor tracks and contact areas on an active top side of the sensor chip, the conductor tracks connecting the contact areas to the electrodes;

a plastic plate, in which the sensor chip is embedded by its rear side and its edge sides, the active top side of the sensor chip together with a top side of the plastic plate having an overall top side; and

a rewiring structure with a rewiring layer having rewiring lines from the contact areas to the external contact areas of the sensor components, the rewiring structure being arranged on the overall top side.

21. (Withdrawn) An optoelectronic coupling component comprising:

a sensor component comprising:

a sensor chip with a sensor region, electrodes of the sensor region, conductor

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tracks and contact areas on an active top side of the sensor chip, the conductor tracks connecting the contact areas to the electrodes;

a plastic plate, in which the sensor chip is embedded by its rear side and its edge sides, the active top side of the sensor chip together with a top side of the plastic plate having an overall top side; and

a rewiring structure with a rewiring layer having rewiring lines from the contact areas to the external contact areas of the sensor components, the rewiring structure being arranged on the overall top side; and
an optical fiber plug-in region.

22. (Withdrawn) A panel comprising:

a plurality of sensor components having component positions associated with the panel arranged in rows and columns, at least one sensor component comprising:

a sensor chip with a sensor region, electrodes of the sensor region, conductor tracks and contact areas on an active top side of the sensor chip, the conductor tracks connecting the contact areas to the electrodes;

a plastic plate, in which the sensor chip is embedded by its rear side and its edge sides, the active top side of the sensor chip together with a top side of the plastic plate having an overall top side; and

a rewiring structure with a rewiring layer having rewiring lines from the contact areas to the external contact areas of the sensor components, the rewiring structure being arranged on the overall top side.

23. (Withdrawn) The panel of claim 22, comprising:

wherein the overall top side comprises electrode areas of passive components embedded in the plastic plate, rewiring lines extending from the electrode areas to contact areas and/or to external contact areas.

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24. (Withdrawn) The panel of claim 23, comprising:

wherein the overall top side comprises contact areas of a semiconductor chip with integrated circuit, rewiring lines extending from the contact areas of the semiconductor chip to contact areas of the sensor chip and/or to electrode areas and/or to external contact areas.

25. (Withdrawn) The panel of claim 24, comprising wherein the sensor chip and a semiconductor chip with integrated circuit are embedded in a manner stacked one above the other in the plastic plate, the sensor region forming a part of the overall top side.

26. (Withdrawn) The panel of claim 25, comprising wherein the sensor region is radiation-sensitive and comprises a lens.

27. (Withdrawn) The sensor component of claim 26, comprising wherein the plastic plate comprises through contacts, the through contacts being connected to external contact areas on a plastic plate rear side and being electrically connected to the rewiring lines on the overall top side.

28. (Withdrawn) A method for the production of a panel comprising:

providing a semiconductor wafer having sensor chip positions arranged in rows and columns;

separating the semiconductor wafer into individual sensor chips with a sensor region and contact areas on an active top side of the sensor chip;

inserting an adhesive film or an adhesive plate into a first mold half with component positions arranged in rows and columns;

applying the sensor chips in the component positions with adhesive bonding of the active top sides of the sensor chips on to the adhesive side of the adhesive film or of the adhesive plate;

bringing together mold halves and injecting a plastics composition into the

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mold with the sensor chips being embedded on one side;

 curing the plastics composition to form a composite plate comprising plastics composition with sensor chips; and

 removing the adhesive film or the adhesive plate and applying a rewiring structure to the freed overall top side of the composite plate.

29. (Withdrawn) The method according to claim 28, comprising wherein in component positions

passive components are additionally positioned with their electrode areas on the adhesive film or on the adhesive plate.

30. (Withdrawn) The method according to claim 28, comprising wherein in the component positions semiconductor chips with integrated circuits are additionally positioned with their contact areas on the adhesive film or on the adhesive plate.

31. (Withdrawn) A method for the production of a sensor component comprising:

 providing a panel having component positions arranged in rows and columns, at least one component comprising a sensor chip with a sensor region, electrodes of the sensor region, conductor tracks and contact areas on an active top side of the sensor chip, the conductor tracks connecting the contact areas to the electrodes; a plastic plate, in which the sensor chip is embedded by its rear side and its edge sides, the active top side of the sensor chip together with a top side of the plastic plate having an overall top side; and a rewiring structure with a rewiring layer having rewiring lines from the contact areas to the external contact areas of the sensor components, the rewiring structure being arranged on the overall top side; and

 applying external contacts to external contact areas; and
 separating the panel into individual sensor components.

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32. (Previously Presented) A sensor component comprising:

a sensor chip with a sensor region, conductor tracks and contact areas on an active top side of the sensor chip;

a plastic plate, in which the sensor chip is embedded by its rear side and its edge sides, the active top side of the sensor chip and top sides of the contact areas, together with a top side of the plastic plate having a planar overall top side; and

means for connecting the contact areas to the external contact areas of the sensor components.

33. (Previously Presented) The sensor component of claim 32, comprising:

wherein the overall top side comprises electrode areas of passive components embedded in the plastic plate, rewiring lines extending from the electrode areas to contact areas and/or to external contact areas.